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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/390,370	09/07/1999	JONATHAN H. YOUNG	06998/23001	6748
26171	7590	01/29/2004		
FISH & RICHARDSON P.C. 1425 K STREET, N.W. 11TH FLOOR WASHINGTON, DC 20005-3500			EXAMINER ARMSTRONG, ANGELA A	
			ART UNIT 2654	PAPER NUMBER 11
DATE MAILED: 01/29/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/390,370

Applicant(s)

YOUNG ET AL: -

Examiner

Angela A. Armstrong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 27 October 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-2, 11-21, 30-33, 36-37, and 46-55 are rejected under 35 U.S.C. 103(a) as being obvious over Sherwood et al (US Patent No. 6,212,498), hereinafter referred to as Sherwood, in view of Roberts (US Patent No. 5,765,132), and in further view of Baker et al (US Patent No. 6,092,044), hereinafter referred to as Baker.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the Sherwood reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this

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rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

2. Regarding claims 1-2, 11-21, 30-33, 36-37, and 46-55, Sherwood teaches a using a speech recognizer to perform speech recognition on a user utterance to produce one or more recognition candidates wherein the speech recognizer compares digital values representative of the user utterance to a set of acoustic models representative of an active vocabulary of the system at Figures 1-12 and col. 3, line 43 continuing to col. 5, line 32.

Sherwood teaches implementation of an active vocabulary and a backup vocabulary at col. 5, lines 24-32, col. 5, line 60 continuing to col. 6, line 19. Additionally, at col. 6, lines 25-29, Sherwood teaches searching of the backup dictionary during error correction.

Sherwood teaches implementation of scoring the recognition candidate at col. 9, line 9 continuing to col. 14, line 10, including implementation of acoustic model scores and language model scores.

Sherwood teaches implementation of an n-gram language model at col. 5, lines 16-23. Additionally, at col. 16, line 13 continuing to col. 17, line 17, Sherwood teaches generating models based on enrollment text.

Sherwood does not specifically teach implementation of word fragments or combining word fragments or words to form proposed words. However, recognizing word fragments and determining if the recognized word fragments can be combined with other word fragments or words was well known in the art.

In a similar field of endeavor, Roberts teaches building speech models for new words in a multi-word utterance. Specifically, at col. 4, line 63 continuing to col. 5, line 21, Roberts teaches generating recognition candidates for a received user utterance, recognizing fragments of an utterance, modifying the recognition candidate and searching the vocabulary for the modified recognition candidate before adding the word to the vocabulary. Roberts teaches the speech recognition system builds speech models for new words without requiring the user to discretely speak the new word such that addition of a new word to the system vocabulary appears as a simple correction of a mis-recognized word (col. 2, lines 40-50).

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the recognition system of Sherwood to implement recognition of word fragments and combining word fragments or words to form proposed words, as taught by Roberts, for the purpose of building speech models for new words without requiring the user to discretely speak the new word, as suggested by Roberts at col. 2, lines 40-50.

Sherwood and Roberts do not specifically teach implementation of spelling rules. However, implementation of spelling rules in a method of adding a word to a speech recognition system vocabulary was well known in the art.

In a similar field of endeavor, Baker teaches a method of adding a word to a speech recognition vocabulary by creating a collection of possible phonetic pronunciations from a spelling of a word, wherein the collection is created by comparing the spelling to a rules list of letter strings associated with phonemes at col. 15, line 56 continuing to col. 18, line 26.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the recognition system of Sherwood to implement spelling rules for adding new words

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to the system vocabulary as taught by Baker, for the purpose of ensuring that new words to be added to the vocabulary are actually valid words.

3. Claims 3-9, 22-29, 34, and 38-45 are rejected under 35 U.S.C. 103(a) as being obvious over Sherwood et al (US Patent No. 6,212,498), hereinafter referred to as Sherwood, in view of Roberts (US Patent No. 5,765,132), in view of Baker (US Patent No. 6,092,044) and further in view of Kanevsky et al (US Patent No. 5,835,888).
4. Regarding claims 3-9, 22-29, 34, and 38-45, Sherwood teaches a using a speech recognizer to perform speech recognition on a user utterance to produce one or more recognition candidates wherein the speech recognizer compares digital values representative of the user utterance to a set of acoustic models representative of an active vocabulary of the system at Figures 1-12 and col. 3, line 43 continuing to col. 5, line 32.

Sherwood teaches implementation of an active vocabulary and a backup vocabulary at col. 5, lines 24-32, col. 5, line 60 continuing to col. 6, line 19. Additionally, at col. 6, lines 25-29, Sherwood teaches searching of the backup dictionary during error correction.

Sherwood teaches implementation of scoring the recognition candidate at col. 9, line 9 continuing to col. 14, line 10, including implementation of acoustic model scores and language model scores.

Sherwood does not specifically teach implementation of word fragments or combining word fragments or words to form proposed words. However, recognizing word fragments and determining if the recognized word fragments can be combined with other word fragments or words was well known in the art.

In a similar field of endeavor, Roberts teaches building speech models for new words in a multi-word utterance. Specifically, at col. 4, line 63 continuing to col. 5, line 21, Roberts teaches generating recognition candidates for a received user utterance, recognizing fragments of an utterance, modifying the recognition candidate and searching the vocabulary for the modified recognition candidate before adding the word to the vocabulary. Roberts teaches the speech recognition system builds speech models for new words without requiring the user to discretely speak the new word such that addition of a new word to the system vocabulary appears as a simple correction of a mis-recognized word (col. 2, lines 40-50).

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the recognition system of Sherwood to implement recognition of word fragments and combining word fragments or words to form proposed words, as taught by Roberts, for the purpose of building speech models for new words without requiring the user to discretely speak the new word, as suggested by Roberts at col. 2, lines 40-50.

Sherwood and Roberts do not specifically teach implementation of spelling rules. However, implementation of spelling rules in a method of adding a word to a speech recognition system vocabulary was well known in the art.

In a similar field of endeavor, Baker teaches a method of adding a word to a speech recognition vocabulary by creating a collection of possible phonetic pronunciations from a spelling of a word, wherein the collection is created by comparing the spelling to a rules list of letter strings associated with phonemes at col. 15, line 56 continuing to col. 18, line 26.

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the recognition system of Sherwood to implement spelling rules for adding new words

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to the system vocabulary as taught by Baker, for the purpose of ensuring that new words to be added to the vocabulary are actually valid words.

Sherwood, Roberts, and Baker do not specifically teach the word fragments comprise suffixes, prefixes and roots. However, implementation of suffixes, prefixes and roots as word fragments for models for a speech recognizer was well known in the art.

In a similar field of endeavor, Kanevsky teaches a statistical language model for recognizers with very large vocabularies. Specifically, at col. 4, line 14 continuing to col. 5, line 8, Kanevsky uses stems, prefixes and endings for training language models for a vocabulary with is used to create sub-vocabularies. Probable paths of word components are obtained by connecting word components from the dictionary. At col. 2, lines 20-24, Kanevsky teaches the system is an improvement because it allows for the building of language models that fully incorporate the morphological features (prefixes and endings).

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the recognition system of Sherwood to implement suffixes, prefixes and roots as word fragments, for the purpose of improving the recognizer by the building of language models that fully incorporate the morphological features (prefixes and endings), as taught by Kanevsky at col. 2, lines 20-24.

5. Claim 35 is rejected under 35 U.S.C. 103(a) as being obvious over Sherwood et al (US Patent No. 6,212,498), hereinafter referred to as Sherwood, in view of Roberts (US Patent No. 5,765,132), hereinafter referred to as Roberts.

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6. Regarding claim 35, Sherwood teaches a using a speech recognizer to perform speech recognition on a user utterance to produce one or more recognition candidates wherein the speech recognizer compares digital values representative of the user utterance to a set of acoustic models representative of an active vocabulary of the system at Figures 1-12 and col. 3, line 43 continuing to col. 5, line 32.

Sherwood teaches implementation of an active vocabulary and a backup vocabulary at col. 5, lines 24-32, col. 5, line 60 continuing to col. 6, line 19. Additionally, at col. 6, lines 25-29, Sherwood teaches searching of the backup dictionary during error correction.

Sherwood teaches implementation of scoring the recognition candidate at col. 9, line 9 continuing to col. 14, line 10, including implementation of acoustic model scores and language model scores.

Sherwood teaches implementation of an n-gram language model at col. 5, lines 16-23. Additionally, at col. 16, line 13 continuing to col. 17, line 17, Sherwood teaches generating models based on enrollment text.

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recognition candidate before adding the word to the vocabulary. Roberts teaches the speech recognition system builds speech models for new words without requiring the user to discretely speak the new word such that addition of a new word to the system vocabulary appears as a simple correction of a mis-recognized word (col. 2, lines 40-50).

Therefore, it would have been obvious to one of ordinary skill at the time of the invention to modify the recognition system of Sherwood to implement recognition of word fragments and combining word fragments or words to form proposed words, as taught by Roberts, for the purpose of building speech models for new words without requiring the user to discretely speak the new word, as suggested by Roberts at col. 2, lines 40-50.

Response to Arguments

7. Applicant's arguments with respect to claims 1-34 and 46-55 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed October 27, 2003, with respect to claims 35 and 37 have been fully considered but they are not persuasive.

Regarding claim 35, Applicant argues Roberts' speech recognition system does not identify word fragments or generate an acoustic model of the word fragment. The Examiner disagrees and argues at col. 5, lines 22-38, Roberts specifically teaches identification of various fragments or segments of the phrase "This is a black cow" to determine the model of the new word "cow" by distinguishing the "ck" fragment of the word "black" from the "c" segment of the

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word “cow” and further describes how the initial acoustic model of the new word is the fragment “ow”, which is modified or combined with the “c” fragment to achieve an appropriate model for the word “cow.”

Regarding claim 37, Applicant argues Baker does not identify spelling rules to convert words or identify fragments of words. The Examiner disagrees and argues Baker provides for methods for adding new words to the vocabulary and uses a rules list to create a set containing all possible phonetic spellings of a word, the rules list provides list of phonemes associated with each letter (which reads on “employing spelling rules to identify word fragments”), and prunes various word segments, to select the word with the phonetic spelling of the best result (see Figures 15 and 16; col. 17, lines 32-57).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela A. Armstrong whose telephone number is 703-308-6258. The examiner can normally be reached on Monday-Thursday 7:30-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

Angela A. Armstrong
Examiner
Art Unit 2654

AAA
January 23, 2004


RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER